

WHAT IS CLAIMED IS:

1. An apparatus for thin-layer metrology of semiconductor substrates, comprising: at least one cassette element for the semiconductor substrates, a first measurement unit for thin-layer micrometrology, a transport mechanism being provided between the cassette element for the semiconductor substrates and the measurement unit for thin-layer micrometrology, and a measurement unit for thin-layer macrometrology, wherein the measurement unit for thin-layer macrometrology is positioned in the region of the transport mechanism, after the cassette element and before the measurement unit for thin-layer micrometrology.
2. The apparatus as defined in Claim 1, wherein the apparatus for thin-layer metrology of semiconductor substrates is enclosed by a housing, the housing defining a basal area.
3. The apparatus as defined in Claim 2, wherein the measurement unit for thin-layer micrometrology and the measurement unit for thin-layer macrometrology are arranged within the housing of the apparatus in such a way that the basal area is no larger than the basal area of an apparatus for thin-layer metrology that contains only a measurement unit for thin-layer micrometrology.
4. The apparatus as defined in Claim 1, wherein the measurement unit for thin-layer micrometrology encompasses a microphotometer and a microellipsometer.
5. The apparatus as defined in Claim 1, wherein the measurement unit for thin-layer micrometrology encompasses a microphotometer or a microellipsometer.

6. The apparatus as defined in Claim 1, wherein the measurement unit for thin-layer macrometrology encompasses a macrophotometer.
7. The apparatus as defined in any of Claim 1, wherein the transport mechanism encompasses a feeder that transports the semiconductor substrates from the cassette element to the measurement unit for thin-layer micrometrology.
8. The apparatus as defined in Claim 1, wherein in the apparatus for thin-layer metrology, the semiconductor substrates are pullable with the feeder out of the cassette element for delivery into the measurement unit for thin-layer micrometrology, the semiconductor substrates being guidable along beneath the measurement unit for thin-layer macrometrology; and measured values being automatically acquirable in that context.
9. The apparatus as defined in Claim 1, wherein the semiconductor substrates are wafers.
10. A method for thin-layer metrology comprising the following steps:
 - transferring semiconductor substrates out of at least one cassette element to a measurement unit for thin-layer micrometrology, the semiconductor substrates being guided along past a measurement unit for thin-layer macrometrology;
 - determining, at the measurement unit for thin-layer macrometrology, measurement locations on the semiconductor substrates that indicate defects and must be examined more closely;
 - transferring the identified measurement locations to a computer; and

- traveling to the identified measurement locations and performing a detailed measurement with the measurement unit for thin-layer micrometrology.
11. The method as defined in Claim 10, wherein the measurement locations identified in the determination step are used as a preselection of the semiconductor substrates to be measured with the measurement unit for thin-layer micrometrology, the measurement location for the measurement unit for thin-layer micrometrology being transferred automatically.
 12. The method as defined in Claim 10, wherein further semiconductor substrates are delivered to the measurement unit for thin-layer macrometrology while a semiconductor substrate is being assessed microscopically in the measurement unit for thin-layer micrometrology.
 13. The method as defined in Claim 10, wherein the determination of the measurement locations on the semiconductor substrates by means of the measurement unit for thin-layer macrometrology supplies measured values that are used, by way of an evaluation of defined monitoring thresholds, for a decision as to whether and at which microscopic points on the semiconductor substrate measurements are to be performed with the measurement unit for thin-layer micrometrology.
 14. The method as defined in Claim 10, wherein the measurement unit for thin-layer micrometrology encompasses a microphotometer and a microellipsometer.
 15. The method as defined in Claim 10, wherein the measurement unit for thin-layer micrometrology encompasses a microphotometer or a microellipsometer.

16. The method as defined in Claim 10, wherein the measurement unit for thin-layer macrometrology encompasses a macrophotometer.
17. The method as defined in Claim 10, wherein the transfer of semiconductor substrates out of the at least one cassette element to the measurement unit for thin-layer micrometrology is performed with a transport mechanism, the transport mechanism encompassing a feeder.
18. The method as defined in Claim 10, wherein the measurement locations determined in the measurement unit for thin-layer macrometrology and the corresponding measurement locations in the measurement unit for thin-layer micrometrology are related by means of coordinate transformation.